

US011531262B2

(12) **United States Patent**
Lee et al.

(10) **Patent No.:** **US 11,531,262 B2**
(45) **Date of Patent:** **Dec. 20, 2022**

(54) **MASK BLANKS AND METHODS FOR
DEPOSITING LAYERS ON MASK BLANK**

USPC 430/5
See application file for complete search history.

(71) Applicant: **TAIWAN SEMICONDUCTOR
MANUFACTURING CO., LTD.,**
Hsinchu (TW)

(56) **References Cited**

U.S. PATENT DOCUMENTS

(72) Inventors: **Hsin-Chang Lee**, Zhubei (TW);
Pei-Cheng Hsu, Taipei (TW);
Ta-Cheng Lien, Cyonglin Township
(TW); **Wen-Chang Hsueh**, Longtan

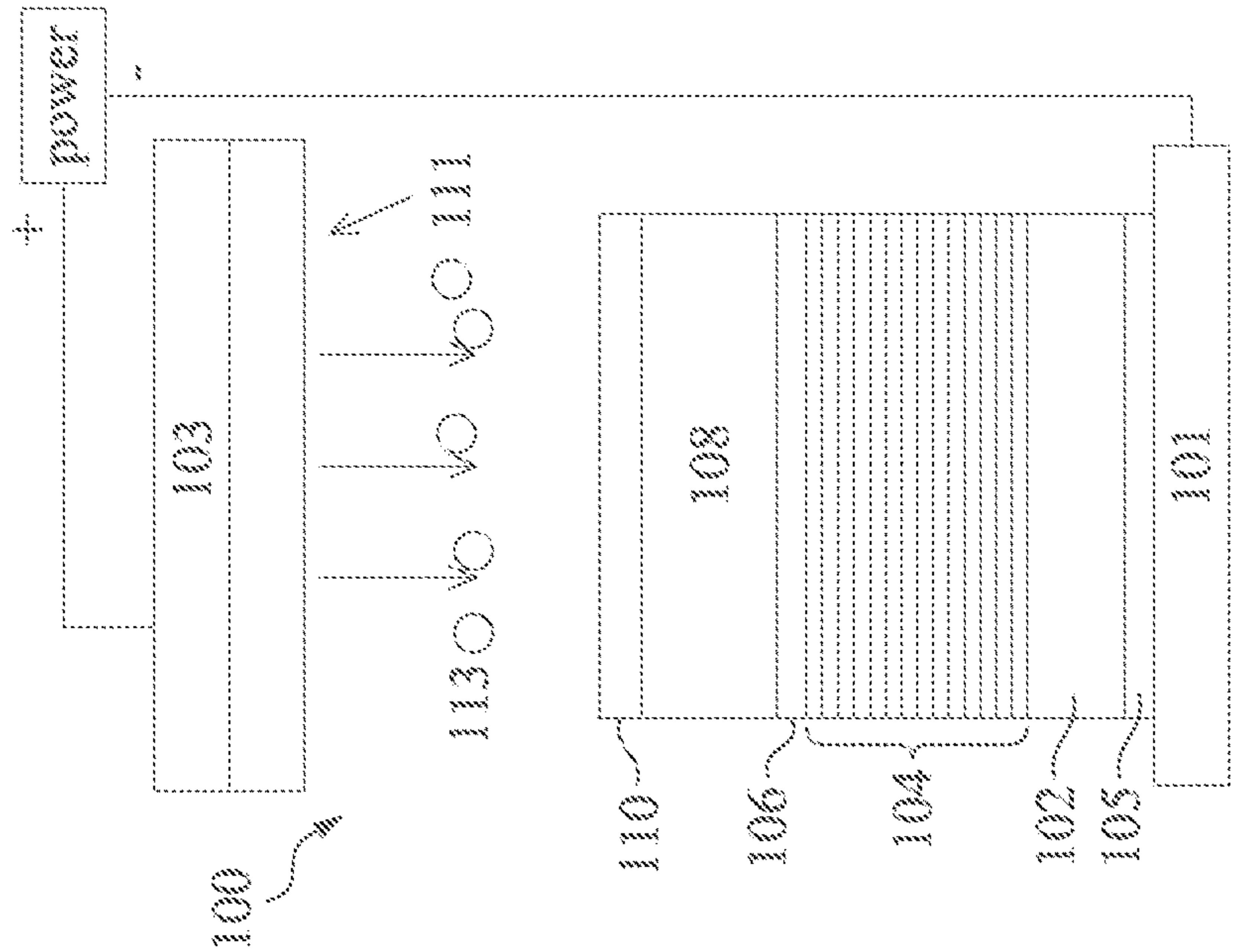
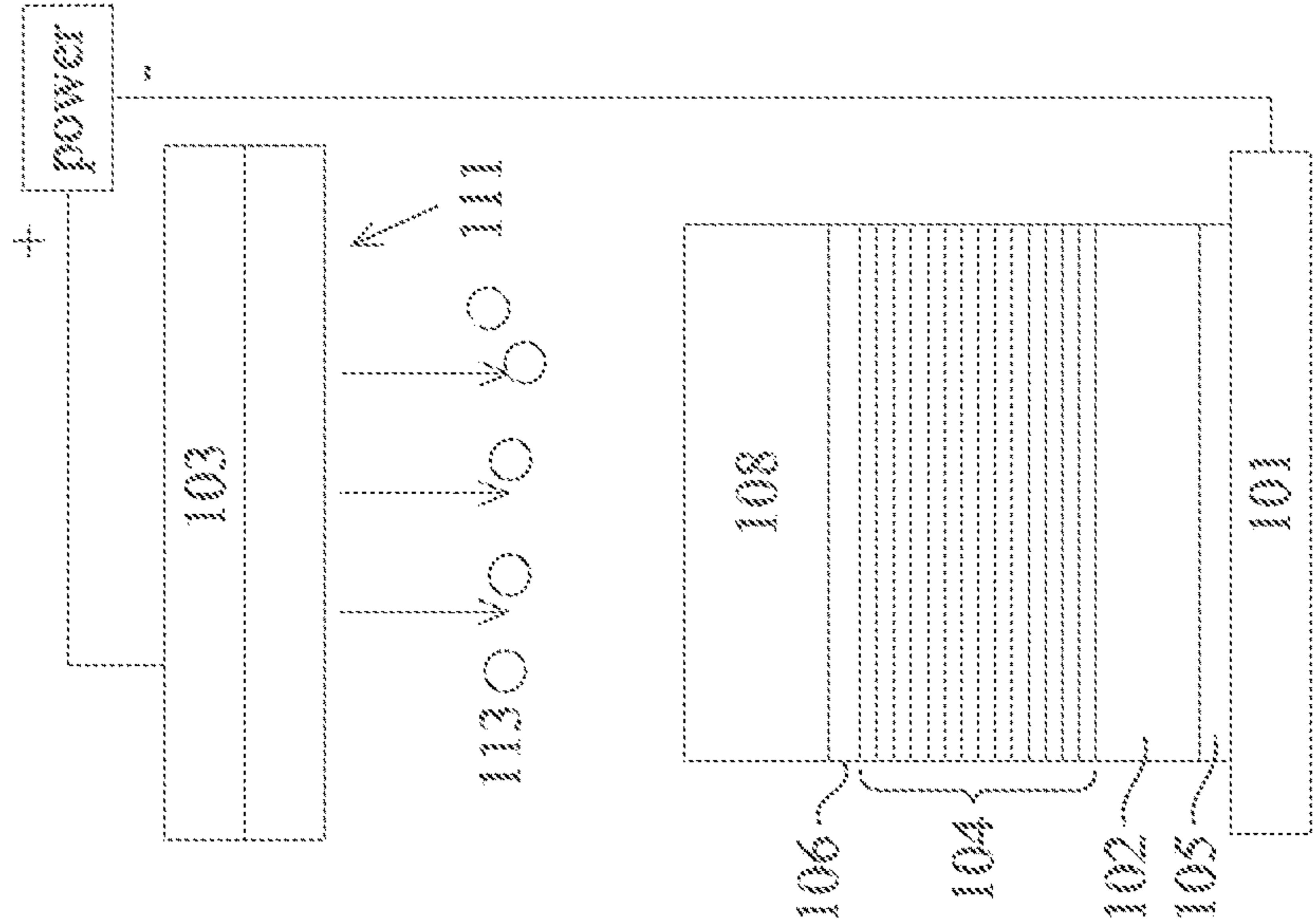
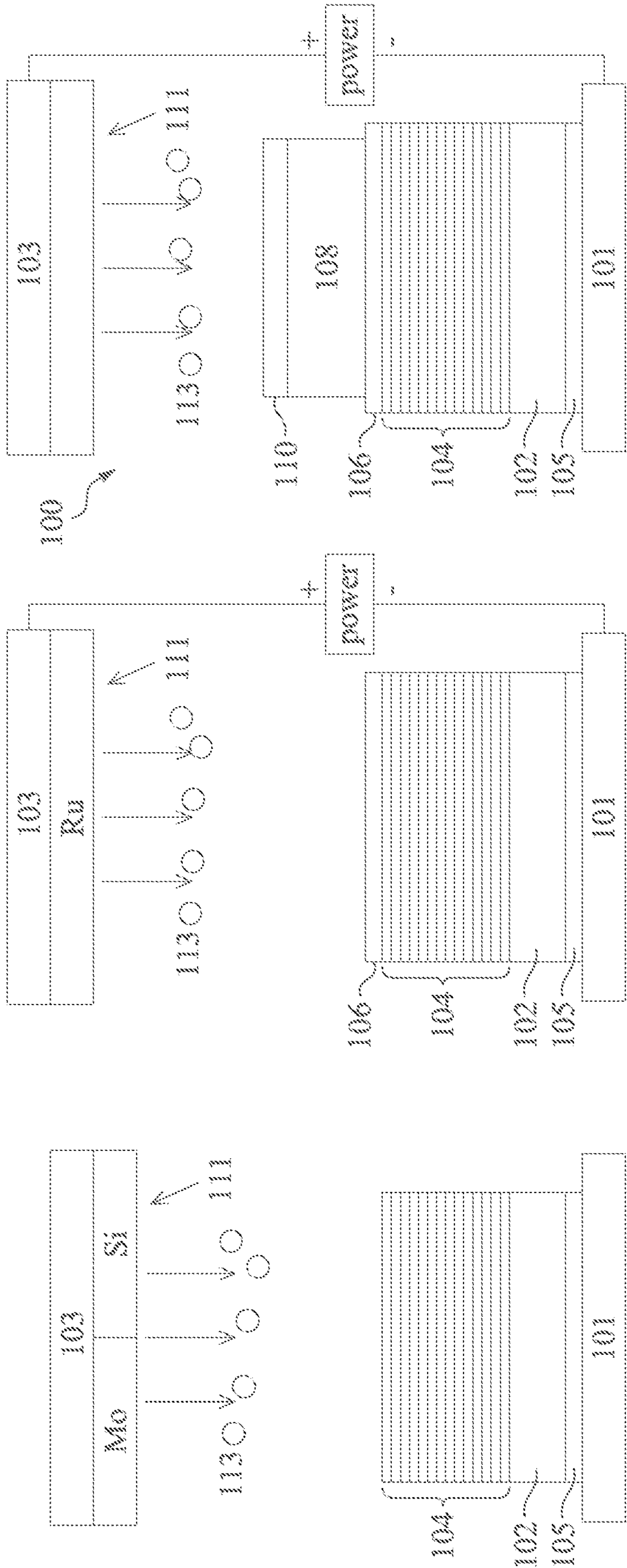


FIG. 1A





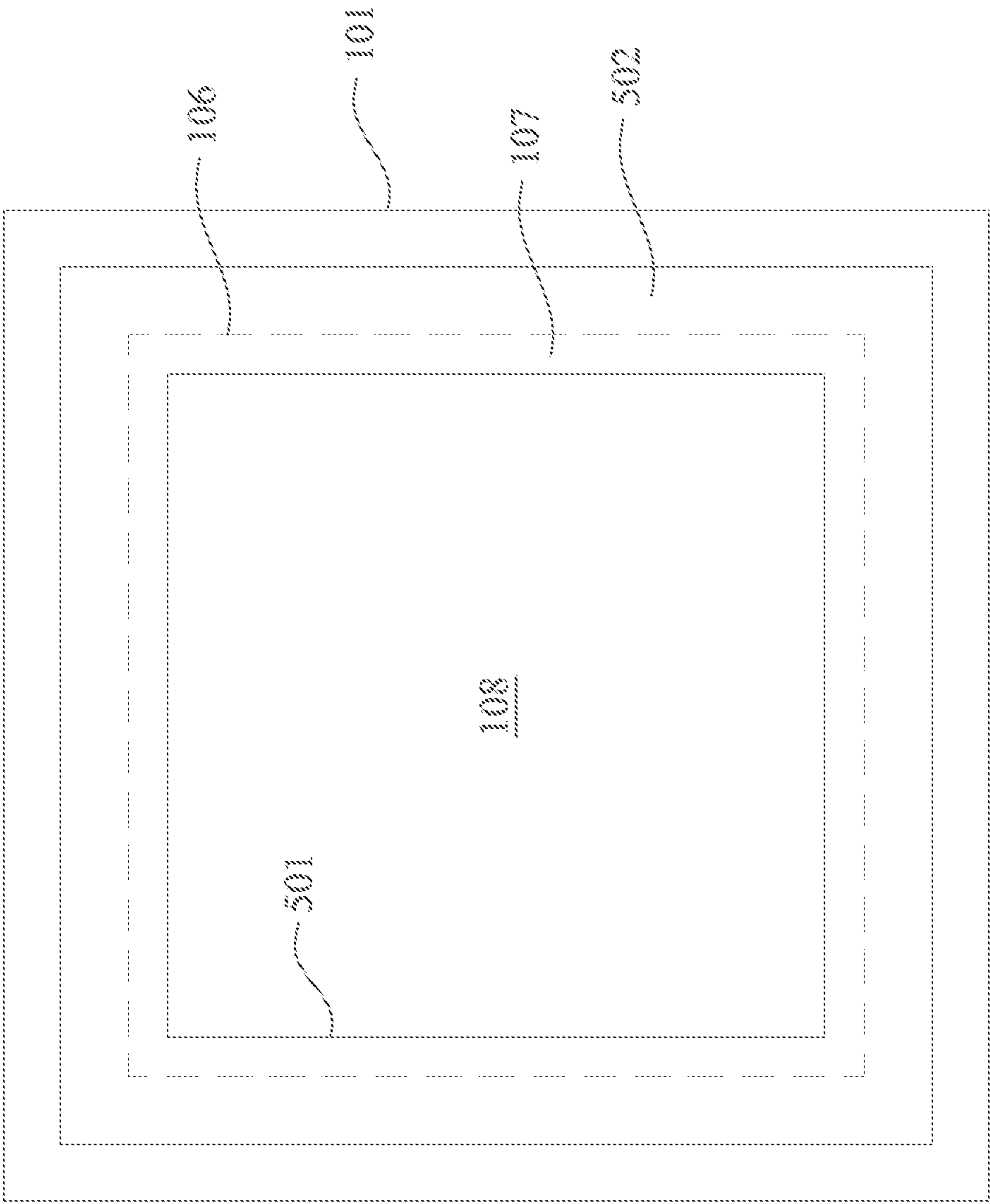


FIG. 5D

